

CHRISTOPHER KRASNIAK

13 Shaker Hill Rd. | Enfield NH 03748 | (315) 941-0665 | cskrasniak@gmail.com | Github: [ckrasniak](https://github.com/ckrasniak)

I thrive on curiosity; posing interesting questions and finding their answers. In today's world the only way to truly answer questions is through data. So far, I have directed my curiosity towards scientific questions, through which I have gained skills in collecting, cleaning, analyzing, and visualizing data to answer complex questions on the neural basis of perceptual decision-making. I now hope to direct these skills to have a greater impact on people's lives as a data scientist who helps bring products to life, optimizes business strategies, and creates tools used across the organization.

Education

Cold Spring Harbor Laboratory, Cold Spring Harbor, NY Aug 2016 to May 2022
PhD in Neuroscience
Dissertation: Mesoscale imaging and inhibition in a standardized decision-making task in mice

Colby College, Waterville, ME Sept 2012 to May 2016
BA in Biology and Psychology; Neuroscience Concentration GPA: 3.92/4.0
Honors: Phi Beta Kappa, Summa Cum Laude, William D. Adams Presidential Scholar, Psi Chi Member

Experience

Cold Spring Harbor Laboratory, Cold Spring Harbor, NY Aug 2016 to May 2022
PhD Dissertation: Imaging and manipulating mouse cortical decision-making
Used widefield calcium imaging to record neural activity across the entire mouse dorsal cortex throughout learning of a decision-making task. Created python analysis pipelines for tasks such as data cleaning, feature engineering, logistic regression, linear and non-linear dimensionality reduction, and hyper-parameter tuning, with rigorous cross-validation to determine the role of cortical areas in visual decision-making. Used python for sophisticated statistical testing across large datasets to confirm results, and created novel visualizations to explore and report on scientific findings to both expert and non-expert audiences.

International Brain Lab Researcher Apr 2018 to May 2022
Collaboratively developed, tested, evaluated, and documented a standardized behavioral task in mice, now used by over a dozen different labs across the world. Performed challenging large-scale electrophysiological recordings in mice to contribute to a massive, ground-breaking dataset of single-neuron activity across the entire brain during a decision-making task. Served as the Associate Chair of the Outreach Working Group to engage both the scientific and lay communities in our research, and neuroscience research in general.

Colby College, Waterville, ME Sept 2014 to May 2016
Undergraduate thesis: Neurobiology of *Drosophila* circadian rhythms
Created transgenic fly lines to determine circadian gene and circadian behavior disruptions caused by expression of a fronto-temporal dementia related gene under the control of various circadian genes.

Woodsmen's Team Captain: Two-year captain of a competitive lumberjacking team.

Teaching Assistant: Assisted students with individual projects. Provided technical instruction, guidance, and conceptual learning for Introduction to Psychology, Woodworking, and Research Methods and Statistics in Psychology.

University of California San Francisco, San Francisco, CA

NSF REU Research Assistant: Epileptic zebrafish heart monitoring

May to Jul 2015

Developed a protocol for monitoring heart rate of zebrafish larvae and used this protocol to characterize the cardiac phenotype of different mutant zebrafish lines. Used this protocol to assess cardio-toxicity of several potential anti-epileptic drug candidates.

Mount Desert Island Biological Laboratory, Salisbury Cove, ME

Maine INBRE Research Fellow: Kidney function and β -catenin

Jun to Aug 2014

Performed mRNA knockdowns of β -catenin in zebrafish larvae and attempted rescues with differentially localized mRNA constructs. Larvae were observed for pericardial edema and blood protein loss phenotypes to assess glomerular dysfunction.

Skills

Data analysis in Python: experienced with many standard analysis and visualization packages including pandas, numpy, scipy, sci-kit learn, matplotlib, and seaborn. Strong experience in writing custom scripts and pipelines, creating novel data visualizations, and organizing and cleaning complicated datasets. Beginner level use of deep learning tools including TensorFlow and Keras.

Strong oral and written communication: honed through many data-driven presentations and written scientific reports, for both technical and non-technical audiences.

Independent learning: self-taught MATLAB and Python coding, linear algebra, git and GitHub basics, SQL, computer aided design, and currently learning to create, train, and use deep neural networks.

Publications

Cold Spring Harbor Laboratory:

The International Brain Lab et al. 2021. Standardized and reproducible measurement of decision-making in mice. *eLife*. 10: e63711. DOI: 10.7554/eLife.63711

Colby College:

Krasniak, C. S. and Ahmad, S. T. 2016. The Role of CHMP2B^{Intron5} Mutation in Autophagy and Frontotemporal Dementia. *Brain Research*. 1649(Pt B):151-157.

Lee, D., Zheng, X., Shigemori, K., Krasniak, C. S., Liu, J.B., Tang, C., Kavalier, J., Ahmad, S.T. 2019. Expression of mutant CHMP2B linked to neurodegeneration in humans disrupts circadian rhythms in *Drosophila*. *FASEB Bioadvances*. DOI: 10.1096/fba.2019-00042

UCSF:

Grone, B. P., Marchese, M., Hamling, K. R., Kumar, M. G., Krasniak, C. S., Sicca, F., Santorelli, F. M., Patel, M., & Baraban, S. C. 2016. Syntaxin-Binding Protein 1 (STXBP1) Mutant Zebrafish to Model Human Neurodevelopmental Disease. *PLOS One*. 11(3): e0151148.

Griffin, A., Krasniak C., Baraban, S. C. 2016. Advancing Epilepsy Research Through Personalized Genetic Zebrafish Models. *Progress in Brain Research*. 226:195-207.

Personal

Baking, hiking and canoeing, wood working, playing hockey and frisbee, Nordic and downhill skiing. Pretty much anything else that gets me outdoors in New England.